

AMENDMENTS TO THE CLAIMS:

The following listing of claims supersedes all prior versions and listings of claims in this application:

LISTING OF CLAIMS:

1. (Currently Amended) A mobile data wireless relay device, the device comprising
having:
receiving means for receiving payload data from a data source[.];
a buffer for storing payload data for subsequent transmission[.];
means for receiving status data from similar devices;
status data generation means for generating status data, the status data being derived from
the quantity of data in the buffer store and the status data received from other devices[, and]
comprising data relating to
the position of the device,
the quantity of data in the buffer store,
a scalar forwarding value, and
a forwarding direction[.];
status transmitter means for transmitting status data to other devices;
selection means for identifying from the status data a receiving device to which the pay-
load data is to be forwarded, the receiving device being located in a position indicated by the for-
warding direction[.]; and

payload transmission means for transmitting the payload data to the receiving device.

2. (original) A mobile data wireless relay device according to claim 1, comprising means for receiving payload data transmitted by other similar devices.

3. (Currently Amended) A mobile data wireless relay device according to claim 1, further comprising a data source.

4. (Previously Presented) A mobile data wireless relay device according to claim 1, wherein the selection means is arranged to only identify a suitable receiving device if the scalar forwarding value meets a threshold criterion.

5. (Previously Presented) A mobile data wireless relay device according to claim 1, further comprising condition-monitoring means for monitoring the expected lifetime of the device, and adjusting the scalar forwarding value accordingly.

6. (Currently Amended) A mobile data wireless relay device according to claim 1, comprising:

means for defining a first node and a second node, the nodes being spaced apart by a distance determined by the amount of data stored in the buffer, the first node being assigned a

positive value for an attribute q and the second node being assigned a negative value for the attribute q, equal in magnitude to that assigned to the positive node[.];

the wireless relay device [[has]] including means for receiving data broadcast by similar wireless relay devices identifying the position data and attribute values of nodes defined by the similar wireless relay devices[.];

means for generating position values for the first and second nodes based on the attribute values of its own nodes and the positions and attribute values of the nodes defined by the neighbouring neighboring devices[.];

means for transmitting the position data and attribute values to similar wireless relay devices; and

means for transmitting payload data to devices that are in the general direction of the second node.

7. (Currently Amended) A mobile data wireless relay device according to claim [[1]] 6, wherein;

the positions of the first and second nodes are determined by determining the position in which the aggregate value of the products of the attribute values of each node with each node of one or more neighbouring neighboring devices, and an arithmetical function of the distance between them, is a minimum or maximum.

8. (Currently Amended) A network of wireless relay devices comprising:
a plurality of mobile wireless relay devices capable of receiving payload data, [[and]]
each ~~having~~ said device comprising means for identifying a forwarding direction relative
to itself, and means for transmitting data to another of the devices whose current position is in
the said forwarding direction and within a predetermined distance,

wherein the devices co-operate to define their forwarding directions such that payload
data is transmitted to a target sink device by means of one or more of the wireless relay devices.

9. (Currently Amended) A network of wireless relay devices according to claim 8,
wherein:

each device defines a positive receive node and a negative transmit node, spaced a pre-
determined distance apart, and

the devices co-operate to define the positions of the nodes so as to ~~minimise the~~ minimize
aggregate distances between nodes having opposite signs, and

~~wherein~~ the forwarding direction of each device is defined as the direction from its
receive node in which its transmit node lies.

10. (Currently Amended) A method of operating a plurality of mobile data wireless
relay devices, said method comprising:

collecting data in buffer stores in one or more such devices[.];

exchanging status data between the devices, the status data comprising data relating to

the positions of the devices, and

the quantity of data in their buffer stores;

each device defining, from the status data, a forwarding direction towards which the payload data in its buffer store is to be forwarded[.]; and

transmitting the stored payload data to a device located in the forwarding direction.

11. (Currently Amended) A method according to claim 10, wherein;

data is only transmitted from a first device to a second device located in its forwarding direction if a scalar forwarding value derived from the status data exceeds a predetermined value.

12. (Previously Presented) A method according to claim 10, wherein the status data includes a measure of the expected lifetime of the device.

13. (Currently Amended) A method according to claim 10, wherein;

each device defines a first node and a second node, the nodes being spaced apart by a distance determined by the amount of data stored in the buffer, the first node being assigned a positive value for an attribute q and the second node being assigned a negative value for the attribute q, equal in magnitude to that assigned to the positive node[.];

~~generating~~ position values are generated for the first and second nodes based on the status data of the device and ~~neighbouring~~ neighboring devices[.];

transmitting the position data and attribute values to similar wireless relay devices; and
transmitting payload data to devices that are in the general direction of the second node.

14. (Currently Amended) A method according to claim 13, wherein;

the positions of the first and second nodes are determined by determining the position in which ~~[[the]]~~ an aggregate value of the products of the attribute values of each node with each node of one or more ~~neighbouring~~ neighboring devices, and an arithmetical function of the distance between them, is a minimum or maximum.

15. (Currently Amended) A method according to claim 14, wherein;

the devices co-operate to define the positions of the nodes so as to ~~minimise the~~ minimize aggregate distances between nodes having opposite signs, and ~~wherein~~ the forwarding direction of each device is defined as the direction from its receive node in which its transmit node lies.

16. (Currently Amended) A method according to claim 13, wherein;

the devices co-operate to define their forwarding directions such that payload data is transmitted, by means of one or more of the wireless relay devices, to a target sink device defined by a receive node.